

## GALILEO.

### I.

SCHOOL-CHILDREN are frequently told that in a time of most dense ignorance, Galileo, an Italian astronomer, discovered that the earth moves around the sun; that this doctrine was contrary to that of the Catholic Church, and that therefore the unfortunate scientist was seized by the Inquisition, thrown into a dungeon, and tortured; that finally he retracted his teaching, but that, nevertheless, even while ostensibly yielding, he muttered: "And yet the earth does move." Very few Protestants even suspect any exaggeration in these assertions; still fewer appear to know that Galileo did *not* discover that the earth moves around the sun; that this doctrine was *not* contrary to that of the Catholic Church; that the imprisonment of Galileo was merely nominal, and that he was subjected to no torture whatever; that the famous remark "*E pur si muove*" is a work of imagination.

Galileo did not discover that the earth moves around the sun. The ancient Greeks certainly knew that the earth is round, that it is isolated in space, and that it moves. Aristotle and Ptolemy undertook to refute the last theory. According to Cicero, Nicetas asserted the motion of the earth. Philolaus,

says Eusebius, thought that the earth moved around the region of fire, in an oblique circle. Aristarchus of Samos, says Archimedes, sustained the immobility of the sun, and that the earth turned around it as around a centre. Seneca thinks it "well to inquire whether the rest of the universe moves around a stationary earth, or whether the earth moves in a stationary universe."\* The Irish Ferghil (Virgilius), Bishop of Salzburg in the eighth century, taught the existence of the antipodes. Dante certainly believed in the antipodes and in central attraction.† Copernicus himself never pretended to be the author of the system which bears his name, although to this humble Polish priest belongs the glory of having precisely formulated that system, and at a time when a knowledge of it had almost vanished from among men. Galileo needs not to be regarded as a prince among astronomers in order to merit the homage of the scientific; his greatest glory is that of a mechanician.

The heliocentric system was not contrary to the doctrine of the Catholic Church. She never has proposed and she can not propose to her children any system of merely physical science as a matter of faith. Certainly, if any system contradicts her teachings she exercises her right to condemn it. Most churchmen of the early seventeenth century,

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\* "Nat. Questions," vii, 2.

† "Hell," canto 34.

quite naturally followers of the generally received scientific theories of their day, rejected the idea of a motion of the earth around the sun; but the Church did not force them to such rejection. Had such been the mind of the Church, Copernicus and his many forerunners would not have been regarded as good Catholics; and Copernicus himself would not have dedicated his "Revolutions of the Heavenly Orbs" to Pope Paul III., saying: "If men who are ignorant in mathematics pretend to condemn my book, because of certain passages of Scripture which they distort to suit themselves, I despise their vain attacks." Calcagnini, who died in 1540, would not have publicly taught at Ferrara that "the heavens stand, but the earth moves."

But if the Church was not hostile to purely scientific innovations, Luther and Melancthon were not so liberal. In his "Table Talk" Luther says: "Men pay heed to an astrologer who contends that it is the earth that moves, and not the heavens or the firmament, the sun and the moon. If a man yearns for a reputation as a profound scientist, he should invent some new system. This madman would subvert the whole science of astronomy; but Scripture tells us that Joshua bade the sun, and not the earth, to stand still." In his "Principles of the Science of Physics," Melancthon says: "The eyes testify that the heavens revolve every twenty-four hours; and nevertheless some men, either from love of novelty or to parade their genius, insist that the

earth moves, and that the eighth sphere and the sun do not revolve. Every true believer is obliged to accept the truth as revealed by God, and to be contented with it."

It is certain that for many years Galileo was admired and cherished by the most learned ecclesiastics of Rome; that three successive Pontiffs gave him many tokens of esteem; that he was one of the most honored members of the celebrated Academy of the Lincei. The Cardinal del Monte, writing to the Grand Duke of Tuscany, says: "During his sojourn at Rome Galileo has given much satisfaction, and I believe that he has received the same; for he has enjoyed good opportunities to exhibit his inventions, and the best-informed men of the Eternal City regard them as most wonderful and accurate. If we were living in the olden days of Rome, the worth of Galileo, I think, would be recognized by a statue on the Capitoline."

A famous scientist, the Carmelite Foscarini, published in 1615—only a year before Galileo's first trouble with the Inquisition—a theological apology for the philosopher and the Copernican system, which was dedicated to Fantoni, General of the Carmelites, and approved by the ecclesiastical authorities of Naples. On May 15 of the same year Mgr. Dini, a Roman prelate and an old pupil of Galileo, writes that there is no fear that the Copernican system will be condemned; and that as to Galileo himself, "he should fortify his position with arguments well-founded both in Scripture and

mathematics;" and that in the meantime he may be assured of the writer's own influence with the Sacred College in his favor, and of the protection of Prince Cesi, the founder and president of the Lincei. Indeed, as late as February 16, 1616, Galileo wrote to Picchena that he found among the highest ecclesiastical dignitaries much displeasure because of "the diabolic opposition of his persecutors."

Before approaching the main object of our article we must reply to a question which naturally occurs to one who observes that the Church of the seventeenth century was not hostile to the Copernican system, and that so many churchmen were favorable to Galileo. How happened it that Galileo found himself cited before an ecclesiastical tribunal? In accounting for this fact little weight need be attached to the sentiments and conduct of those who, in his day as at all times, appear to be tolerated by God for the trial of genius. Men who argued against the movement of the earth because the earth has no limbs, muscles, and sinews;\* men who would decry the heliocentric system with the words, "Ye men of Galilee, why stand ye looking up to heaven?"†—such persons could have had no influ-

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\* Thus Chiaramonti of Cesena.

† Thus the Dominican Caccini, preaching the Advent course in S. Maria Novella in Florence. But Maraffi, General of the Dominicans, writing to Galileo on January 10, 1615, deplored the extravagance of Caccini, who, he said, had previously been forced to apologize in Bologna for other absurdities in the pulpit.

ence upon the Roman Congregations. Nor would these tribunals have exercised their power merely because Galileo was contradicted by Tassoni, Vieta, Montaigne, Bacon, Pascal, and other great thinkers of the time.\* The fault of Galileo consisted in his confusing revealed truths with physical discoveries, and in teaching in what sense Scripture passages were to be taken, explaining them by demonstrations of calculation and experience. Every one admits with Dante† that the Scriptures adopt popular ideas for the sake of perspicuity. But Galileo said that in the Scriptures "are found propositions which, taken literally, are false; that Holy Writ out of regard for the incapacity of the people, expresses itself inexactly, even when treating of solemn dogmas; that in questions concerning natural things, philosophical argument should avail more than sacred."

These assertions unsettled all science, founded as it then was on revelation; "the earth," says Cantù,

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\* Tassoni, a very independent thinker, thus reasoned: "Stand still in the middle of a room, and look at the sun through a window opening toward the south. Now, if the sun stands still and the window moves so quickly, the sun will instantly disappear from your vision." Vieta, a consummate algebraist, thought the Copernican system derived from a fallacious geometry. Montaigne said that probably before a thousand years a third system would supplant the two others. Descartes sometimes denied the Copernican theory. Bacon derided it as repugnant to natural philosophy. Pascal, in his "Thoughts," deemed it "wise not to sound the depths of the Copernican opinion." As late as 1806 the Milanese Pini, in his "Incredibility of the Movement of the Earth," sustained the Ptolemaic idea.

† "Paradise," iv, 43-45.

“ceased to be regarded as the largest, warmest, and most illuminated of the planetary bodies. It no longer enjoyed a pre-eminence in creation as the home of a privileged being, but became one of many in the group of unexplored planets and in no way distinguished from the others. Fearing that science was aggrandizing itself only to war on God, the timid repudiated it. Only later did the better minds understand that the faith fears no learning; that historic criticism can be independent and impartial without becoming irreligious. Then good sense estimated at their true value the accusations launched against the Church because of the affair of Galileo; it distinguished simple assertions from articles of faith, positive and necessary prohibitions from prudential and disciplinary provisions, the oracles of the Church from the deliberations of a particular tribunal. To such a tribunal a denunciation was made that Galileo or his disciples had asserted that God is an accident and not a substance, a personal being; that miracles are not miracles at all. Then the Pontiff declared that, for the termination of scandal, Galileo should be cited and admonished by the Sacred Congregation.”\*

In endeavoring to discover what followed on Galileo's second summons before the Inquisition (concerning his first trial in 1615 there is no question as to either imprisonment or torture), it would

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\* “Illustrious Italians,” Milan, 1879.

appear to us that no better source of information can be desired than the original "Process." But since Libri,\* Perchappe,† Bertrand,‡ and others insinuate—according to what principles of criticism the reader must judge—that as this record has been nearly always in the hands of ecclesiastics, they *may* have destroyed evidence of their own cruelty, we will here adduce the testimony of the Tuscan Ambassador, Niccolini. This evidence ought to be acceptable to our adversaries; for the writer was an intense partisan of Galileo, and would not have hidden anything likely to excite sympathy for his hero. Add to this the fact that these dispatches are directed to Galileo's own sovereign, himself a warm admirer of the philosopher. Galileo arrived in Rome on February 13, 1633, and under date of March 13 Niccolini writes:

"The Pope told me that he had shown to Galileo a favor never accorded to another, in allowing him to reside in my house instead of in the Holy Office. . . . His Holiness said that he could not avoid having Galileo brought to the Holy Office for the examination; and I replied that my gratitude would be doubled if he would exempt Galileo from this appearance, but he answered that he could not do

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\* "History of Mathematical Science in Italy," Paris, 1841; vol. iv, pp. 155–294.

† "Galileo: His Life and Discoveries," Paris, 1866.

‡ "Founders of Modern Astronomy," Paris, 1865.—When Napoleon invaded Rome in 1809, among the literary and historical monuments which he stole was the original Process of



so. . . . He concluded with the promise to assign Galileo certain rooms which are the most convenient in the Holy Office." On April 16 the Ambassador says: "He has a servant and every convenience. The reverend commissary assigned him the apartments of the judge of the tribunal. My own servants carry his meals from my house." . . .

About two months later (June 18) Niccolini continues: "I have again besought for a termination of the cause of Galileo, and His Holiness replied that the affair is ended, and that Galileo will be summoned some morning of next week to the Holy Office, to hear the decision. . . . In regard to the person of Galileo, he ought to be imprisoned for some time, because he disobeyed the orders of 1616; but the Pope says that after the publication of the sentence he will consider with me as to what can be done to afflict him as little as possible." On June 26: "Monday evening Galileo was summoned to the Holy Office, and on Tuesday morning he proceeded thither to learn what was required of him. He was detained, and on Wednesday he was taken

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Galileo. The Holy See vainly demanded it from the government of the Restoration. While it was yet in France the astronomer Delambre consulted it, but very negligently, as is evinced by the inexactness of his quotations when writing to Venturi the letter published in 1821 by the latter. Delambre did not appreciate the Process very highly, probably because, like Barbier ("Critical Examination of Historical Dictionaries," Paris, 1820), he could find no proof of his own assertion that Galileo had been tortured. The volume was finally assigned to Count Rossi, to be restored to the Vatican in 1846, and there it still remains.

to the Minerva, before the lords-cardinals and the prelates of the Congregation, where the sentence was read, and he was forced to abjure his opinion. The sentence includes the prohibition of his book, and his condemnation to the prison of the Holy Office during the pleasure of His Holiness, because, as they declare, he disobeyed the order given him sixteen years ago in this matter.\* But his condemnation was commuted by His Holiness to a residence in the gardens of the Trinità dei Monti." On July 3: "His Holiness told me that although it was rather early to diminish the penance of Galileo, he had been content to allow him to reside at first in the gardens of the Grand Duke, and that now he could proceed to Sienna, there to reside in a convent or with my lord the Archbishop." †

According, therefore, to Niccolini, the imprisonment of Galileo was merely nominal, and there is no mention of any infliction of torture. But let us examine further this question of torture. It is said that the Process itself furnishes an indication of the

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\* Of the ten cardinals forming the tribunal, and all of whose names are at the head of the preamble, three did not sign the document. These were Gaspar Borgia, Zacchia, and Francis Barberini, nephew of Urban VIII. One of the signers, Anthony Barberini, a brother of the Pontiff and a Capuchin friar, tried hard to obtain a remission of the entire penance.

† July 6 found Galileo at Sienna, dwelling with his old friend and disciple, the Archbishop Ascanio Piccolomini. On December 16, the Cardinal Francis Barberini having obtained this favor, he arrived at his own villa of Arcetri, and here he resided almost constantly until his death on January 8, 1642.

infliction of torture; that in the fourth interrogatory, on June 21, torture was menaced; that in the sentence the judges declared that they had “deemed it necessary to proceed to a *rigorous* examination” of the accused. It is true that torture was threatened, but the menace was not executed. In a decree issued by Urban VIII. on June 16, 1633, and first published by L’Epinois, it was ordered that Galileo “should be questioned as to his intention [in publishing the ‘Dialogue’], and that he should be menaced with torture. If he does not yield to the threat, he must be made to pronounce, in full session of the Holy Office, an abjuration for strong suspicion of heresy.”

On June 21, in the fourth and last interrogatory, but without any mention of the above decree, Galileo was questioned as to his intention in the “Dialogue” in regard to the Copernican system. In reply he would only admit that, cherishing his hypothesis, and feeling proud of the arguments adduced for it before 1616, he had given in the “Dialogue” more strength to the Copernican than to the other opinion. Refusing, therefore, to avow the imputed intention, he was threatened with torture. Then he replied—with what truth let his ultra-admirers imagine: “I have not held the Copernican system since I was ordered to abandon it [seventeen years before]. But I am in your hands. Do with me what you will.” This refusal to acknowledge the imputed intention had been fore-

seen by Pope Urban, and, as he had provided for the contingency, the tribunal did not fulfill the threat of torture, but proceeded to the act of abjuration. As for the words "rigorous examination" used in the sentence, they do not necessarily imply that torture had been inflicted; they can easily refer to the threat pronounced in the fourth interrogatory.

But, according to the code of laws binding upon the inquisitors, which are fully given in the "Directory" of Eymeric,\* the official guide of the Holy Office, torture could not have been inflicted on Galileo. It is prescribed that when the accused denies the charges, and they have not been substantiated, and he has not yet furnished a good defence, he shall "be put to the question, in order that the truth may be reached,"—provided, however, that the consulters so advise. Now, Galileo was not obstinate; he had no inclination to become a martyr for science. In his sentence the judges say: "We deemed it necessary to proceed to a rigorous examination, and thou didst reply like a Catholic—*respondisti Catholicè*." Having thus answered, he could not be tortured. It is sad to hear him uttering what his judges must have known to be a lie: "For some time before the determination of the

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\* "Directory for Inquisitors, by Friar Nicholas Eymeric, of the Order of Preachers; Commentated by Francis Pegna, S. T. D. and J. U. D., Auditor of Causes in the Apostolic Palace." Part III., on the "Practice of the Inquisitorial Office," chapter on the "Third Way of Ending a Trial for Faith." Venice, 1595.

Holy Office, and before I received that command [the order of 1616], I had been indifferent as to the two opinions of Ptolemy and Copernicus, and had held that both were disputable and that both could be true in nature. But after the above mentioned determination, being assured by the prudence of my superiors, all my doubts ceased, and I held, *as I now hold, the theory of Ptolemy as true,—that is, that the earth does not, and the sun does move.*” If Galileo had undergone torture, he would scarcely have omitted to mention it among his many grievances, when, a few days after his departure from Rome, on July 23, he wrote from Sienna to Gioli, minister of the Grand Duke: “I address you, prompted by a desire to escape from the long *weariness* of a more than six months’ imprisonment, and from the trouble and *affliction of mind* of a whole year, coupled with many *inconveniences* and bodily *dangers.*”

And now a few words as to the authenticity of the “*E pur si muove.*” In the formula of abjuration, after having avowed that his “Dialogue” favors the “false” doctrine of the movement of the earth around the sun, and having admitted his violation of the prohibition of 1616, Galileo “affirms and swears, with his hand on the holy Gospels,” that “with a sincere heart and unfeigned faith he abjures, anathematizes and detests the aforesaid errors and heresies,” for which he has been justly condemned as “strongly suspected of heresy.” And he promises not only to abstain hereafter from all heretical

doctrine, but also to denounce all heretics to the Inquisition or to the ordinary of the locality. Motives of both personal and general interest certainly decided an act of apparent submission; but in performing it Galileo could not, without risk of destroying himself, have given himself the questionable satisfaction of a merely childish contradiction. Undoubtedly he thought that the earth moved, and probably the inquisitors knew that he so thought. But had he made the famous remark, he would not have been dismissed two days afterward.

If Galileo risked so much by the quoted ebullition at so fatally decisive a moment, how comes it that never after, either by speech or in writing, did he expressly contradict his abjuration by openly professing his system? Certainly, when writing in confidence to some intimates, he would insist upon his innocence from a religious point of view; but in all other instances his reticence was persistent. Every opportunity and temptation to break this imposed silence was presented when he wrote to Diodati, then in Paris, on July 25, 1634, complaining of the violence of his enemies toward himself and his teachings,—a violence which he would answer only by silence. Nor does he contradict his abjuration in his letter written in 1637 to King Ladislaus of Poland, whom he asks to compare his “Dialogue” with the sentence pronounced against its author, and to see if its doctrine is more pernicious than that of Luther and Calvin, as Urban VIII. was said to believe. Nor, again, does he

advocate his system in his letter to Pieresc on February 21, 1636, in which he insists on the injustice of his condemnation. When he writes to Rinuccini on March 29, 1641, he evades a direct answer to an attempt to obtain an avowal of his real mind.

## II.

HAVING shown in the previous pages that the imprisonment of Galileo was merely nominal, and that no torture was inflicted upon him, we must now briefly examine the decisions of the Roman Congregations in his case, with a view to their doctrinal consequences. Protestant polemics gladly proclaim these decisions as destructive of the Catholic doctrine of Infallibility. Certain Catholic writers have enunciated views on the matter which can serve only to confirm the opinion that the Church and science are implacable foes. For instance, the Viscount de Bonald, with that severity which is generally characteristic of lay theologians, insists that the double movement of the earth has never been and never can be proved; that even to-day he who defends the Copernican system is "guilty of rashness" in contradicting the natural sense of the Scriptures; that if the old system was an illusion, the Bible favors said illusion.\* This author would advise, therefore,

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\* "Galileo, the Holy Office, and the System of the World," in the *Correspondent* of Dec. 25, 1854. See also this author's "Moses and Modern Geologists," Avignon, 1835.

if he were logical, the Pope and the Roman Inquisition to revoke the decree of toleration issued in favor of the Galilean theory on September 17, 1822, and would have them condemn the many scientific ecclesiastics, like Secchi and Matignon, who "rashly oppose the natural sense" of the Scriptures.\*

Again, there are other Catholic critics whose views, though far more moderate than those of De Bonald, are almost equally untenable. Thus it is quite common to hear that Galileo was always allowed to teach his system "as an astronomical supposition;" whereas the official documents show that our philosopher was prohibited, in 1616, to uphold "said opinion in any way whatsoever;" and that in 1633 he was punished for having disobeyed this injunction by publishing a work in which there were no interpretations of sacred texts. Among the critics of this class the most eminent are the astronomer Lalande,† the Abbé Berault-Bercastel,‡ Bergier,§ and Feller,||—all of whom copy the Protestant Mallet du Pan, whose errors are carefully noted by Theodore Martin.¶

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\* In 1842 a certain Abbé Matalène published in Paris a book entitled "Anti-Copernicus, a New Astronomy;" but his ecclesiastical superiors sharply reminded him that he had no right to compromise the clergy by such extravagancies.

† "Voyage in Italy," 1786.

‡ Eccl. Hist., 1778-85.

§ Dict. Theol.

|| Dict. Hist., art. "Galileo."

¶ "Galileo and the Rights of Science," Paris, 1868.—Among the errors of Mallet du Pan, which Martin with undue severity stigmatizes as "lies," are to be noted his pretence that Bellarmine did not, in 1616, interdict any astronomical hy-



Other Catholic polemics, such as Alzog\* and Höffler,† hold that the Copernican system, having been advanced too soon, was dangerous to both science and religion, and that this pretended fact justifies the action of the Inquisition. But the official records evince that the new system was condemned as “false and altogether contrary to Scripture,” and not as a mere matter imprudently or prematurely advanced. Nay, more: the sentence of 1633 expressly states that even though Galileo had presented his system only as probably true, still he would have offended; for, in the words of the decree, “an opinion cannot be probable when it has been declared and defined to be contrary to Sacred Scripture.”

M. Adolphe Valson ‡ contends that the Copernican proposition concerning the movement of the earth was not condemned as “heretical,” if taken by itself; and that in condemning the other Copernican

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pothesis; the assertion that Galileo caused his apologetic letter to Christendom to be printed before his condemnation; the declaration that no *imprimatur* was really given for the publication of Galileo's “Dialogue.” Pretending to give extracts from a certain dispatch of Guicciardini, Mallet du Pan asserts that they show that Galileo wished to force the Pontiff to make a religious dogma of his system; whereas the reading of the dispatch causes one to almost justify Martin when he says that Mallet “not only mistakes, but is an imposter.”

\* Church Hist., Fr. transl., Paris, 1855, vol. iii, p. 249.

† Encyc. Dict. Theol. Cath., art. “Galileo.”

‡ In the “Review of Christian Economy” for Dec., 1865, and Jan. and Feb., 1866.

theory on the non-movement of the sun, the Inquisition was right, since the sun has a movement of its own. As to the first assertion, it is true that the theory of the earth's movement was not condemned as "heretical," but it was declared "false and altogether contrary to Scripture." As to Valson's second remark, there was no question of this special movement of the sun; this movement, toward the constellation of Hercules, was utterly unknown at that time; but what the Inquisition forbade Galileo to deny was the movement of the sun *around the earth*.

Very different from the opinions of the above critics is that of Tiraboschi,\* who admits that vulgar prejudices caused the prohibition of 1616, and the condemnation of 1633, and declares that these decisions were pronounced by a fallible tribunal, and not by the Church. He shows that at first Galileo found his discoveries favorably received in Rome, but that the angry Peripatetics soon adopted the Bible as a weapon against him. However, being ignorant of the fact that the Preface to the condemned "Dialogue" had been written, not by Galileo, but by the examiner Riccardi, Tiraboschi accuses the scientist of bad faith. He declares that the Congregations erred because of a too great devotion to Peripateticism.

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\* "First Historical Memoir, on the First Advocates of the Copernican System," read in the Modenese Academy *dei dissonanti* in 1792, inserted in the Venetian edition of the "Hist. Ital. Litt.," 1796. "Second Memoir, on the condemnation of Galileo and the Copernican System," read in 1793.

About the year 1825 Olivieri, General of the Dominicans and commissary of the Holy Office, wrote a dissertation on the affair of Galileo,\* in which he gave a very curious apology for the Congregations. The teachings of Copernicus and Galileo, said Olivieri, were not condemned because they did not agree with the Bible, but because these two scientists upheld them with bad arguments, which, being contrary to sound philosophy, seemed therefore opposed to Scripture. If Galileo, continued Olivieri, had known the gravity of the air, and had not obstinately attributed the tides to a combination of the diurnal and annual revolutions of the earth, things would have gone differently; for the Church has ever encouraged any real progress—one which is free from errors. Olivieri also contended that the real cause of all the misfortunes of Galileo was his having provoked the “vengeance” of Urban VIII.†

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\* Not edited until 1855, in the “Universite Catholique.”

† In his “Dialogue on the Two Principal Mondial Systems,” published in 1632 with the approbation of the Master of the Apostolic Palace, Galileo assigns the exposition of his opinions to his friend and pupil, Salviati of Florence, then some time dead. Galileo himself is not named, but he is often indicated by the title of *Linceo*. The part of an investigator, impartial and judicious, is filled by the Venetian senator, Sagredo, another deceased friend of the author. The defence of the Peripatetic system is confided to one Simplicius, who uses absurd arguments and will yield to none; who is, in fine, a fair representative of many of Galileo’s opponents. Whether or not Urban VIII. credited the assertion of Galileo’s enemies, that under the guise of Simplicius he himself was held up to ridicule, it is certain that now he manifested less sympathy

A decisive refutation of all these assertions has been given by Govi.\*

From the beginning of the affair of Galileo, remarks Theodore Martin, five courses were open to the ecclesiastical authorities. The philosopher and his friends would have been satisfied if, firstly, it were acknowledged that the new system was not contrary to Catholic faith; secondly, if liberty of discussion were allowed in its regard; and, thirdly, if both the Copernicians and Peripatetics were forbidden to adduce Biblical texts in their debates. Certainly ecclesiastical tradition as well as prudence, both ever favorable to toleration in such matters, would seem to have counselled one of these three courses. Cardinal Matthew Barberini, afterward Pope Urban VIII., Cardinal Bellarmine, and other moderate Peripatetics, preferred a fourth course,—namely, to leave liberty only to the Peripatetics, and, while not deciding against the new system, to interdict it as rash and dangerous under the circumstances. In 1632 Urban VIII. adopted a

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for the philosopher. Just previous to this period the Pontiff had declared to the Benedictine Castelli that if it had depended on him, the decree of 1616 would not have been issued. On March 16, 1630, Castelli wrote to Galileo that in an interview with the celebrated Campanella, “his Holiness used these very words: ‘We never desired that decree; and had it depended on us it would not have been issued.’” This letter is found in Alberi’s edition of the “Works of Galileo,” vol. ix, p. 196.

\* “The Holy Office, Copernicus, and Galileo, considered in reference to a posthumous dissertation of Father Olivieri,” Turin, 1872.

fifth course,—namely, to procure the condemnation of the Copernican system as false in philosophy, erroneous in theology, and contrary to Sacred Scripture.

Now arises the question: *By whom* was the doctrine of the movement of the earth thus condemned? Certainly, it was through the influence of Paul V. and of Urban VIII., respectively, that the decisions of 1616 and 1633 were rendered; but neither *their* authority as *Pontiffs* nor that of *the Church* was implicated. As men these Popes were opposed to the system of Galileo, but as Popes their names are not signed in the famous decisions. Both are published only in the name of the Congregations. This absence of the Pontifical ratification is remarked by Descartes in three letters to Mersenne, and by Gassendi.\* The Jesuit Riccioli† invokes against the teachings of Galileo the authority of “the Congregations delegated by the Pope,” but he does not contend that the Pope can delegate his infallibility. The absence of the Pontifical ratification in the decisions against Galileo is noted by the Benedictine Caramuel,‡ who, after declaring that the new system is absurd, asks himself what the Church would do if, “which is impossible,” the movement of the earth were ever demonstrated. He replies that the Church would declare that “the Roman

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\* “Impressed Motion,” Lyons, 1658, vol. iii, epist. 2.

† “Almagestum Novum,” Bologna, 1651, vol. i, pt. 2, p. 489.

‡ “Fundamental Theology,” Lyons, 1676. The passages are cited by Bouix, in his “Condemnation of Galileo,” Arras, 1866, pp. 25–29.

Congregations, having decided without the Papal ratification, were mistaken.”

In fine, let it be remembered that neither in 1616 nor in 1633 did the supreme authority of the Church pronounce a decision concerning the Copernican system. Muratori, writing in Italy a century before the works of Galileo were removed from the Index, says that the Copernican system was condemned “not by an edict of the Supreme Pontiff, but by the Congregation of the Holy Office. . . . To-day this system is everywhere in vogue, and Catholics are not forbidden to hold it.”\* Tiraboschi specially insists on our admiring the “Providence of God in favor of His Church; since, at a time when the majority of theologians firmly believed that the Copernican system was contrary to the Sacred Scriptures, the Church was not permitted to give a solemn decision on the matter.”† No Catholic will assert that the Roman Inquisition has never committed any errors; and in the case of Galileo it was the Inquisition that erred, and not the Pontiff; and even though the Pontiff had erred, the decision was not one concerning faith or morals,—one, that is, which can form the object matter of Infallibility.

“Whenever,” says Cantù, “there is opened a new scientific, or philosophical horizon, even the most elevated intellects are stricken with fright, as when America was discovered, and when steam and elec-

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\* “Annals of Italy,” at year 1633.

† “Memoir II.,” *loc. cit.*

tricity were first applied. What wonder if contradiction befell the Copernican system, which appeared to subvert the order not only of the physical but of the moral world; which seemed to threaten faith and morals, just as it changed the reciprocal position of the heavenly bodies? What wonder if it seemed impious and scandalous to subject man and his habitation to the same laws which regulate the other phenomena of nature? Was it not for this reason that, quite recently, Hegel denied the movement of the earth? When the Reformation had spread, and men were substituting their individual for the canonical interpretation of the Scriptures, churchmen were frightened on seeing certain verses interpreted in a new manner, and they went so far as to condemn Galileo. Nor should we forget that until Faucolt furnished it, in our own days, there was no physical proof of the movement of the earth. Faucolt gave it in the progressive deviation of the oscillating plane of a pendulum suspended from a fixed point. But no serious person will repeat the absurdities of Libri,\* of Arduini,† and of similar writers, confuted by Biot,‡ Alberi, Martin, and by common-sense.”

He who would understand the great catastrophe in the life of Galileo must consult the writings of the

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\* *Loc, cit.*

† “The first Born of Galileo,” Florence, 1864.

‡ In Michaud’s “Universal Biography,” and in two dissertations in the *Journal des Savants* for March, July and October, 1858.

scientist, and the invaluable documents published by Alberi in his great edition of the "Works."\* It is *not true*, as Libri and, after him, many Protestants insist, that the officers of the Inquisition destroyed or secreted nearly all the papers of Galileo. All his principal works remain, and nearly all the minor ones. A few of his MSS. were destroyed by one of his grandsons, who felt some scruples about preserving any writings of one condemned by the Holy Office. Most of the important works and of the correspondence were collected by Galileo's disciple, Viviani, who bequeathed them to a nephew, Panzanini; the heirs of this nephew sold some of them as waste-paper, but nearly all were recovered by Giambattista Nelli, whose son Clement used them and part of Viviani's collection in his "Life of Galileo," published in 1793. When publishing his edition of the "Works," Alberi promised to give to the world a Life based upon documents in his hands, but he failed to do so. However, this Life would not have been complete, as there were many documents which he could not procure. Thanks to Father Theiner, Prefect of the Vatican Archives, who communicated these papers to M. Henri de l'Epinois, the world received, in 1867, much light on the affairs of the great scientist, in the valuable work of L'Epinois.†

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\* In sixteen large volumes, Florence, 1842-56.

† "Galileo: His Process and Condemnation, According to Unedited Documents."